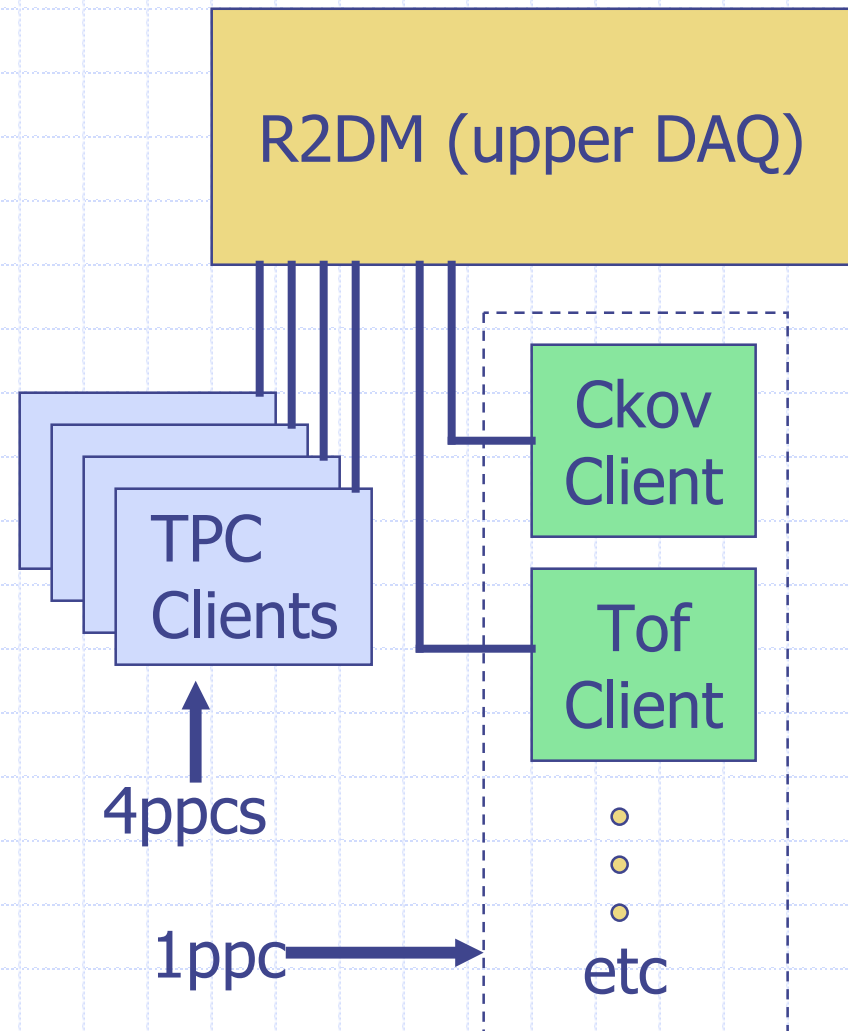# Lower DAQ and the TPC

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llnl

What is the Lower DAQ ?

Software

- Lower DAQ = Client for the R2DM DAQ software + supporting software
- Client inherits from Luciano's R2DM client class

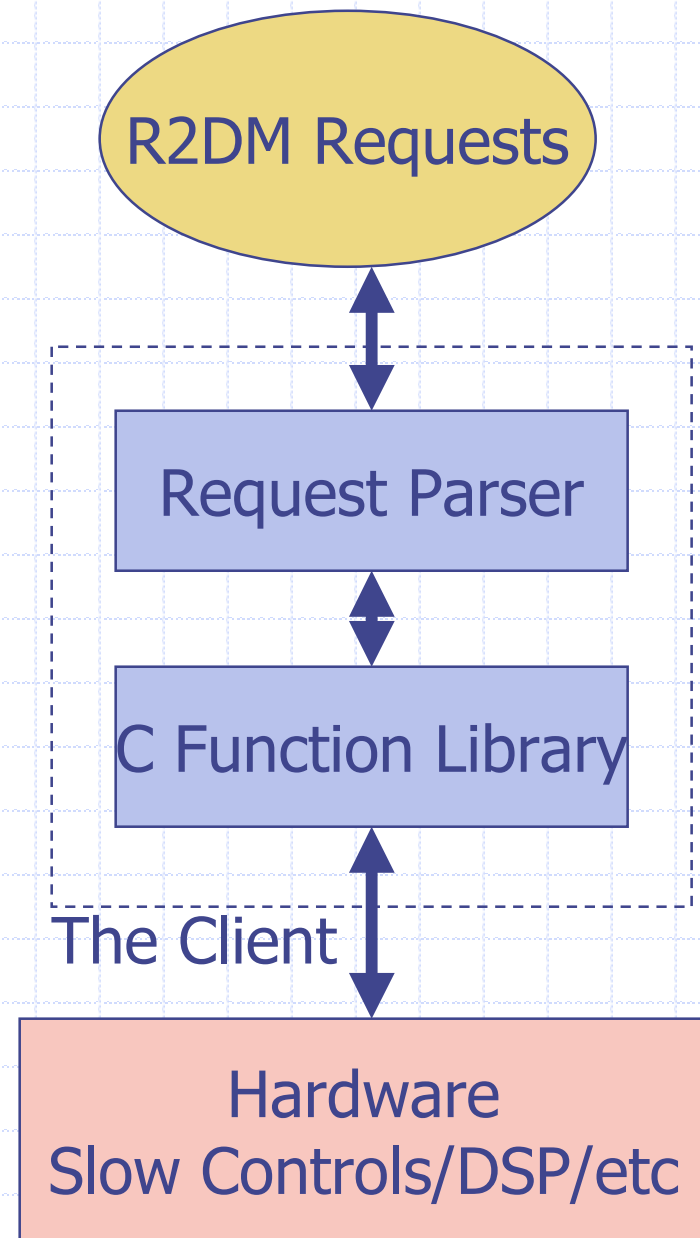## Hardware

- 5 PowerPCs/VME Crates
- 100baseT connections

R2DM (upper DAQ)

TPC Clients

Ckov Client

Tof Client

4ppcs

1ppc

etc

TPC Client

- This package is the interface between the TPC and the Upper DAQ

Systems	Function Types
Slow Controls	Configure
DSP	Check Status
Memory Pool	Data Transfer
Trigger	Tests
Ethernet	

R2DM Requests

Request Parser

C Function Library

The Client

Hardware
Slow Controls/DSP/etc

How it works/what is done

- Client runs on the CPU
- Data transfer and control is orchestrated from CPU
- Ethernet package from PPC is processed for simple packaging by E907daq

- Hardware mostly understood
- Functions written
  - Test
  - MiniDAQ
- Triggered on Cosmic with older CPU just before the pac meeting

```
┌─────────────────────┐
│  BitBus Master      │◄──────► Stick X32
│                     │  Wire link
│  DSP X8             │◄──────
│                     │  Optical link
│  CPU (PPC)          │────────► E907daq
└─────────────────────┘  Ethernet
  VME Crate
```
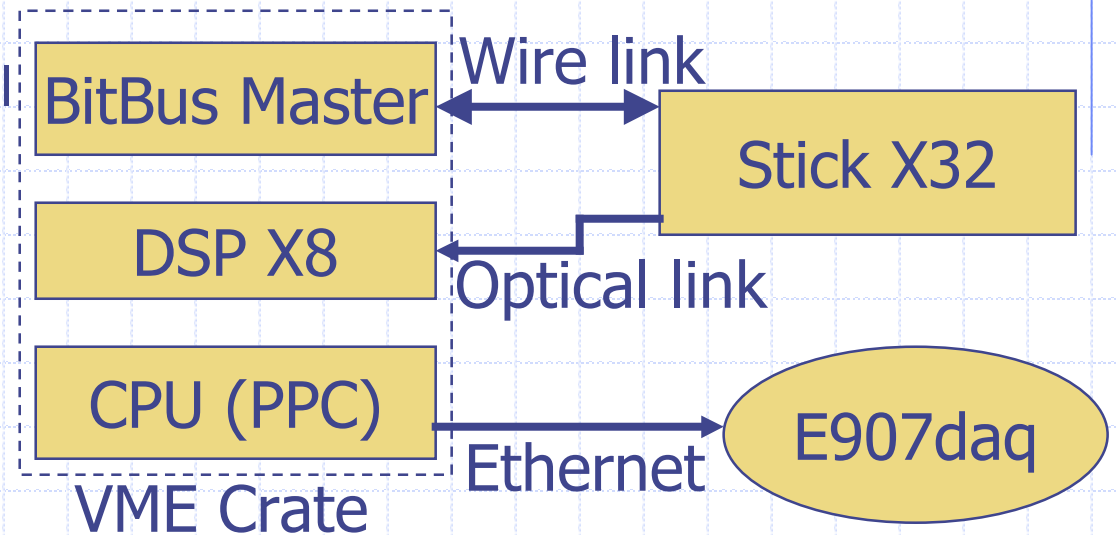
```
Options:
        Setup the DSPs (d)
        Setup the Sticks (s)
        Get Bitbus nodes (n)
        Set Threshold for hit finding (t)
        Get pedestals and make table (p)
        Get Event (set up for trigger) (g)
        Mark the DSPs as read. --0x82 in CSR-- (m)
        Get data file name (f)
        Exit (e)
Request:
```

What needs to be done

- Code structure needs to be established—CVS
- Establish working data format (for testing)
- Test compression algorithms with fake data
- Bench tests of PPC with Linux and Vxworks
- Port/write C function library
- Write Parser for R2DM Client